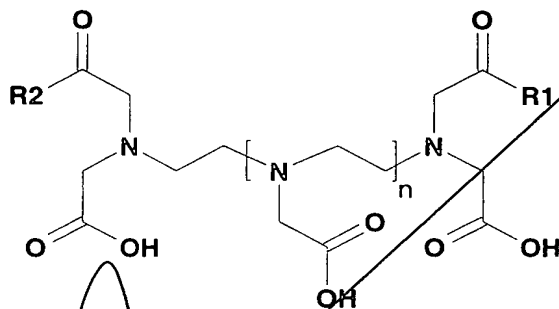


We claim:

1. A compound of Formula I:

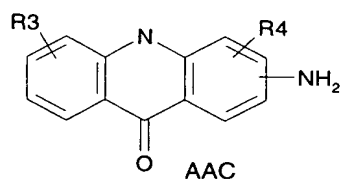
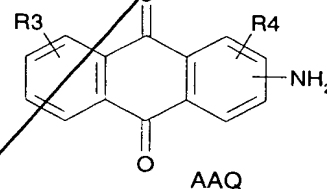
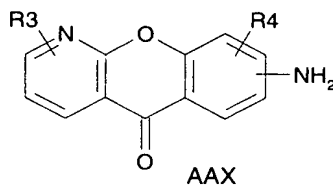
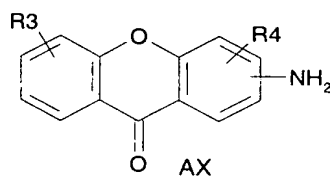
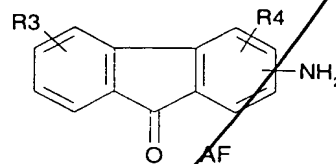
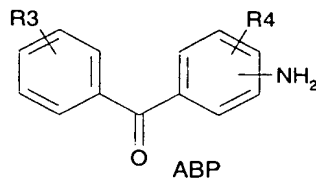
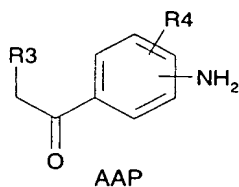


[N \backslash]_n is a chelator selected from the group consisting of: DTPA (n= 1), (TTHA) (n=2), and a polycarboxylate derivative of DTPA or TTHA, which chelates a lanthanide metal cation;

R1 is selected from the group consisting of: phenones and quinolines; and

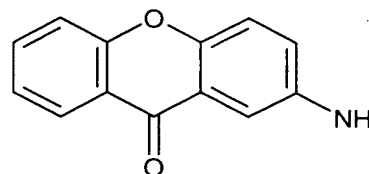
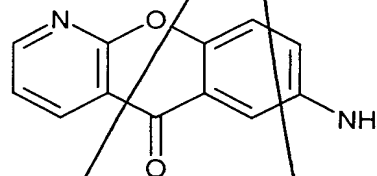
R2 is selected from the group consisting of: OH, NH(CH₂)_nOH, NH(CH₂)_nNH₂, NH(CH₂)_nPhNH₂, NH(CH₂)_nPhOH, NHCH(CO₂H)CH₂PhNH₂, NH(CH₂)_nPhNCS; wherein n is 1-6.

2. A compound according to Claim 1 wherein R1 is selected from the following group: aminoacetophenones (AAP), aminobenzophenones (ABP), aminofluorenones (AF), aminoxantones (AX), amino-azaxanthones (AAX), aminoanthraquinones (AAQ), aminoacridones (AAC), and aminoquinolines (AQ):

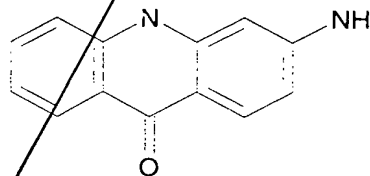


wherein R3 and R4 are independently selected from the group consisting of: H, OH, NH₂, COCH₃, CPh, OPh, NPh, CN, NO₂, CO₂H, and CO₂CH₃.

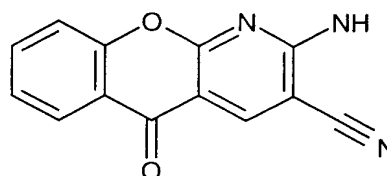
- 5 3. A compound according to Claim 1 wherein R1 is selected from the following group:

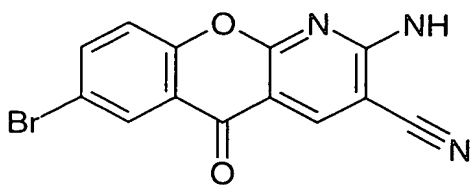


10 7AAX

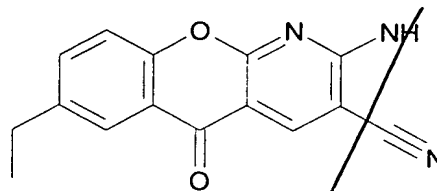


2AX



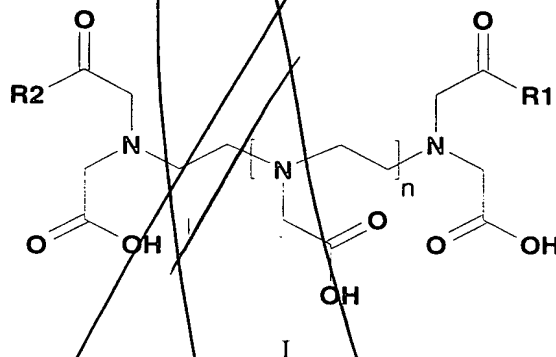


2ACBAX



2ACEAX

4. A compound according to Claim 1 wherein $[N\Lambda]_n$ is DTPA ($n=1$).
5. A compound according to Claim 1 wherein the lanthanide metal cation is selected from the group consisting of: Tb III, Eu III, Sm III, and Dy III.
6. A compound according to Claim 5 wherein the lanthanide metal cation is selected from the group consisting of: Eu III or Tb III.
7. A method for using a compound of Formula I:



I

wherein:

$[N\Lambda]_n$ is a chelator selected from the group consisting of: DTPA ($n=1$), (TTHA) ($n=2$), and a polycarboxylate derivative of DTPA or TTHA, which chelates a lanthanide metal cation;

R1 is selected from the group consisting of: phenones and quinolines; and
 R2 is selected from the group consisting of: OH, $NH(CH_2)_nOH$, $NH(CH_2)_nNH_2$, $NH(CH_2)_nPhNH_2$, $NH(CH_2)_nPhOH$, $NHCH(CO_2H)CH_2PhNH_2$, $NH(CH_2)_nPhNCS$;
 wherein n is 1-6;

in fluorescence detection-based techniques or bioassays comprising the steps of:

- 5 a. labelling an aliquot comprising donor biomolecules selected from the group consisting of: peptides, proteins, deoxyribonucleic acids (DNAs), ribonucleic acids (RNAs), enzyme substrates, and ligand molecules with a compound of Formula I by a linking reaction with linker R2 to provide a labelled biomolecule assay sample;
- 5 b. adding a suitable amount of a suitable organic dye to the labelled biomolecule assay sample;
- c. exciting the labelled biomolecule assay sample in a suitable fluorescence instrument to provide a fluorescence emission for quantitation.
- 10 8. A method according to Claim 7 wherein said organic dye is selected from the group consisting of but not limited to: rhodamine, allophycocyanin (APC) and indodicarbocyanin (CY-5),
- 15 9. A kit for fluorescence detection-based techniques or bioassays comprising:
- a. a suitable amount of a compound of Formula I; and
- b. a suitable amount of organic dye.
- 20 10. A kit according to Claim 9 wherein said organic dye is selected from the group consisting of but not limited to: rhodamine, allophycocyanin (APC) and indodicarbocyanin (CY-5).

add
A¹